

REMARKS

The Examiner is thanked for the due consideration given the application.

Claims 24-40 and 47 are pending in the application. The claims have been amended to improve the language in a non-narrowing fashion. Claim 27 has been amended to depend on claim 25. New claim 47 sets forth subject matter canceled from claim 25.

No new matter is believed to be added to the application by this amendment.

Rejection Under 35 USC §112, Second Paragraph

Claims 26-30 have been rejected under 35 USC §112, second paragraph as being indefinite. This rejection is respectfully traversed.

The Official Action asserts that the term "solvent mixture" in claim 27 does not have sufficient antecedent basis. However, claim 27 has been amended to depend on claim 25 to thus make this term clear, definite and have full antecedent basis.

This rejection is believed to be overcome, and withdrawal thereof is respectfully requested.

Art Rejections

Claims 24-36 (and claim 40 from the text) have been rejected under 35 USC §103(a) as being unpatentable over KIERULFF et al. (U.S. Patent 6,,298,859) in view of WOCHNOWSKI et al. (U.S. Patent 3,265,209).

Claims 37-39 have been rejected under 35 USC §103(a) as being unpatentable over KIERULFF et al. in view of WOCHNOWSKI et al., and further in view of CLAPP et al. (U.S. Patent 4,941,484).

These rejections are respectfully traversed.

KIERULFF et al. pertain to a process for preparing a tobacco product, which process includes treating a tobacco material with a **phenol modifying enzyme**, preferably a **phenol oxidizing enzyme** and most preferably a **polyphenol oxidizing enzyme** (col. 1, lines 49-53).

In particular, KIERULFF et al. disclose a process for preparing a tobacco product, which comprises the steps of (Claim 1):

(i) extracting a tobacco material with a solvent to provide an extraction mixture;

(ii) separating the extraction mixture into a tobacco extract and a tobacco residue, and

(iii) contacting the tobacco extract with a phenol oxidizing enzyme to produce one or more oxidized phenolic compounds.

According to KIERULFF et al., the method reduced the amount of the phenolic compounds in tobacco, whereby the soluble phenolic compounds of the tobacco material are extracted into the liquid part of an **extraction mixture**, thereby **facilitating the action of the phenol oxidizing enzyme** (col. 3, lines 54-59).

The solvent used for the extraction step is preferably an aqueous solvent. However, mixtures of water and organic solvents may also be used to extract phenolic components such as lignin or other hydrophobic compounds, which are not soluble or only slightly soluble, in water (col. 3, lines 61-65).

WOCHNOWSKI et al. pertain to a method and an apparatus for separating lighter particles from heavier particles (col. 1, lines 15-17).

In particular, WOCHNOWSKI et al. relate to a method and an apparatus for separating heavier particles in the form of tobacco ribs from lighter particles in the form of tobacco leaves (col. 1, lines 18-21).

In addition, the apparatus for separating tobacco ribs from tobacco leaves by subjecting a mixture of ribs and leaves to the action of one or more air streams is constructed in such a way that the mixture is separated into heavier and lighter components in two or more stages to make sure that any heavier particles which might have been entrained by the bulk of the lighter particles are also separated from the lighter particles, or vice versa (col. 1, lines 60-68).

CLAPP et al. pertain to a process for reducing the protein content of tobacco material. The process involves five steps, which are the following (Claim 1):

(i) extracting components from tobacco material with a solvent having an aqueous character;

(ii) separating extracted tobacco components from extracted tobacco material;

(iii) subjecting the extracted tobacco material to aqueous enzyme treatment to decompose essentially water insoluble protein components of the tobacco material to water soluble and/or water dispersible fragments; and separating tobacco material subjected to such treatment from decomposed protein fragments resulting from such treatment;

(iv) subjecting the extracted tobacco components to membrane treatment and collecting permeate resulting from such treatment; and

v) contacting the extracted tobacco material resulting from step (iii) with the permeate collected in step (iv).

In contrast, the present invention concerns a process for the treatment of tobacco leaves (*Nicotiana tabacum*) comprising the following steps:

- a) drying and curing of the leaves;
- b) extraction of dried leaves with a solvent or mixtures of solvents;
- c) redrying of the extracted leaves; and
- d) elimination of the ribs.

KIERULFF et al. does not disclose or infer a first step wherein the tobacco leaves are dried and cured before the extraction process.

Furthermore, in KIERULFF et al. a step which involves the use of an enzyme is foreseen, in particular the tobacco extract is contacted with a **phenol oxidizing enzyme** to produce one or more oxidized phenolic compounds.

The use of any kind of enzyme is not foreseen in the present patent application.

WOCHNOWSKI et al. only disclose a process and an apparatus for carrying out the elimination of ribs. No mention is made in WOCHNOWSKI et al. about the previous steps of:

- a) drying and curing of the leaves;
- b) extraction of the dried leaves with a solvent or mixtures of solvents; and
- c) redrying of the extracted leaves

Accordingly, neither KIERULFF et al. nor WOCHNOWSKI et al. disclose or infer the first step of drying and curing the leaves before the extraction step is carried out. Indeed, there is no teaching in KIERULFF et al. or in WOCHNOWSKI et al. that the extraction is to be performed on previously dried and cured leaves.

It is evident that the prior art documents, alone or in combination, do not show or suggest all the steps of the process, nor even, consequently, show or suggest the sequence steps of the process in the exact order as per the present invention as is embodied in claim 24.

That is, the prior art references do not teach a particular reason whereby one of ordinary skill in the art would have modified the prior art to produce the claimed invention with a reasonable expectation of success, i.e., to perform a preliminary first step of drying and curing the leaves (which has never been suggest before in the applied art, to carry out an extraction without implying the use of an enzyme (which is on the contrary provided in the prior art and accordingly modiling significantly the teaching of KIERULFF et al. and then, after redrying of the exacted leaves, to eliminate the ribs (combining the general concept underlying WOCHNOWSKI et al.)).

The process of the present invention allows the production of tobacco leaves with a predetermined standardized and desired nicotine content starting from a raw material with a variable nicotine content.

The process according to the present invention is particularly advantageous since it allows the desired nicotine content to be obtained regardless of the initial content, with no need to blend different types of tobacco or to use an expensive processing technique for the elimination of rib

In addition, the final nicotine content can also reach particularly low values, lower than those obtainable by the traditional techniques used to manufacture cigarettes with a low nicotine content.

Furthermore, the process at issue allows to obtain advantageously tobaccos with a reduced chloride content, which otherwise adversely affects the combustibility, texture and flavors of the leaves.

Therefore, this process transforms tobacco leaves with very low or nil combustibility into leaves with ideal combustibility, thus allowing the use of all the leaves of the tobacco plant and or tobacco which would otherwise be unusable because they re not combustible

According to the invention, tobaccos suitable for the production of cigarettes and other smoking products are obtained.

Accordingly, it is evident that the invention yields unexpectedly properties due to the specific process steps and th the specific order in which they are carried out.

Thus, the present invention yields unexpected properties no present in the prior art.

It is clear the present invention yields more than predictable results and, consequently, the invention is not obvious.

Regarding dependent claims 35, 36 and 40, even if assuming *arguendo* that KIERULFF et al. disclose an extraction treatment one time using the extraction solvent and also discloses Virginia tobacco as starting material, since the dependent claims 35, 36 and 40 incorporate all the technical features of the independent claim 24 on which they depend on and

taking into account the abovementioned considerations pointed out for claims 24-34, the Applicant believes that in view of non-obviousness of the genral process of the independent claim 24, also dependent claims therefore should be considered inventive.

Regarding claims 37-39, Although in CLAPP et al. one step of drying after an extraction process is described, which however, as also stated by the Official Action, is not exactly that intended by the present invention, taking into account the above-mentioned considerations pointed out for claims 24-34 and in view of the fact that dependent claims 37-39 incorporate all the technical features of the independent claim 24 (on which they depend), the Applicant believes that in view of non-obviousness of the general process cover by independent claim 24, also dependent claims thereof should be considered as inventive.

As a result, one of ordinary skill and creativity would not produce a claimed embodiment of the present invention from a knowledge of the applied art references. A *prima facie* case of unpatentability has thus not been made. Also, the unexpected results of the present invention would fully rebut any unpatentability that could be alleged.

These rejections are believed to be overcome, and withdrawal thereof is respectfully requested.

Conclusion

The Examiner is thanked for considering the Information Disclosure Statement filed January 9, 2006, and for making the references cited therein of record in the application.

Prior art of record but not utilized is believed to be non-pertinent to the instant claims.

As no issues remain, the issuance of a Notice of Allowability is respectfully solicited.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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